

REMARKS

Applicants respectfully request reconsideration of the prior art rejection set forth by the Examiner under 35 USC §§102 and 103. Applicants respectfully submit that the prior art references of record, whether considered alone or in combination, fail to either teach or suggest Applicants' presently claimed invention. Applicants' claimed invention is directed to an improved solid state image sensor device and method of driving a solid state image sensor device which is capable of operating in both an interlaced mode and a progressive mode wherein all of the signal charges are read out from the imaging device independently without being combined.

As described in the specification, in the progressive mode, reading out of image signals is performed such that all picture element signals are independently output without being mixed. In contrast, in the interlaced scanning mode, 525 scanning lines are scanned alternately such that a first field and a second field are obtained by respective scannings and the respective fields are superimposed in order to obtain a frame of an image.

One of the deficiencies of the conventional driving techniques for solid state imaging devices is that in the progressive mode, one signal for each picture element is output so that the saturation signal quantity becomes half of that compared with the interlaced mode of operation. The saturation signal quantity is the maximum signal quantity that may be achieved when the solid state image sensor device outputs the correct signal. In the conventional mode of operation, during progressive output, there is a decrease in the

saturation signal quantity which results in the degradation of the dynamic range for the device.

Applicants have overcome the shortcomings of the prior art by providing image scanning techniques which rely upon the application of voltage to the substrate such that during the progressive mode of operation, the substrate voltage is smaller than the bias voltage applied during the interlaced mode of operation. See, for example, each of the independent claims and the summary of the invention. Applicants have demonstrated that the improve dynamic range results in a much more capable device that provides high quality image output regardless of the mode of operation. Applicants have added new claims to underscore the differences between the innovations of the present application and the prior art.

Suzuki merely teaches that dynamic range can be altered by changing the substrate voltage but requires application of three distinct substrate voltages (See column 12, lines 50-65). There is no such requirement in the instant application. Furthermore, Applicants submit that there is no disclosure whatsoever regarding the structures described in the newly submitted claims.

Accordingly, in light of the foregoing, Applicants respectfully submit that the references of record fail to provide the requisite teaching or suggestion to support the rejection of the claims as set forth by the Examiner. Applicants respectfully request that the Examiner now withdraw these rejections and allow all claims in the application.

Date: May 25, 2004

Respectfully submitted,

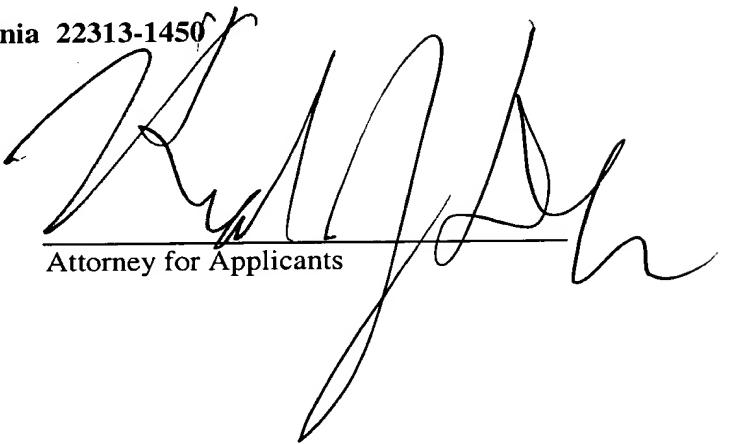
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